01/13/14 Agenda

- Review Homework
  Worksheet 6 - Solve for Missing Sides in Similar Polygons

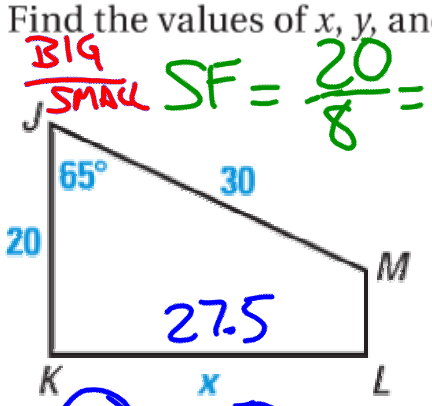
- Section 6.4-6.5 - Proving Triangles Similar

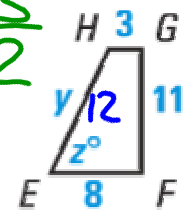
- Homework
  Worksheet 7 - Proving Triangles Similar

Warm Up - Homework out

In the diagram, *JKLM* ~ *EFGH*.

Find the values of x, y, and z.





BIG / SMALL $SF = \frac{20}{8} = \frac{5}{2}$

$z = 65°$

$y = 12$

$x = 27.5$

$\frac{5}{2} = \frac{30}{y}$

$5y = 2 \cdot 30$

$5y = 60$

$y = 12$

$\frac{5}{2} = \frac{x}{11}$

$2x = 5 \cdot 11$

$2x = 55$

$x = 27.5$

Section 6.4 & 6.5 - Prove Triangles Similar **Target 6E**

January 13, 2014

Goal:	Prove triangles similar by AA~, SSS~, and SAS~.

Todays Takeaways:	1. Know difference between congruency and similarity. 2. Prove similarity using AA~.
SWBAT	3. Prove similarity using SSS~. 4. Prove similarity using SAS~.

Section 6.4 & 6.5 - Prove Triangles Similar Target 6E

January 13, 2014

Goal 1. Know difference between congruency and similarity.

Congruency: (Chapt. 4)

- Figures are same size & shape.
- All corresponding angles are congruent.
- All corresponding sides are congruent.

Ways to prove congruency:

- Side, Side, Side (SSS)
- Side, Angle, Side (SAS)
- Angle, Side, Angle (ASA)
- Angle, Angle, Side (AAS)
- Hypotenuse, Leg (HL)

Similarity: (Chapt 6.)

- Figures are same shape.
- All corresponding angles are congruent.
- All corresponding sides are proportional.

Ways to prove similarity:

- Angle, Angle (AA~)
- Side, Side, Side (SSS~)
- Side, Angle, Side (SAS~)

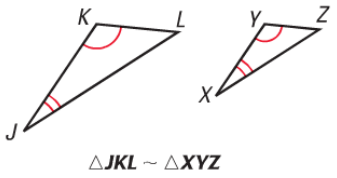
January 13, 2014

Goal 2. Prove similarity using AA~.

POSTULATE *For Your Notebook*

POSTULATE 22 Angle-Angle (AA) Similarity Postulate

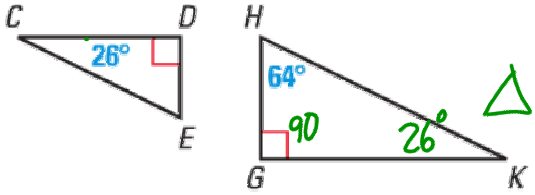
If two angles of one triangle are congruent to two angles of another triangle, then the two triangles are similar.



$\triangle JKL \sim \triangle XYZ$

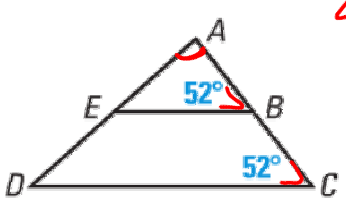
Examples: Determine whether the two triangles are similar. If so, write a similarity statement.

1.



$\triangle CDE \sim \triangle KGH$

2.

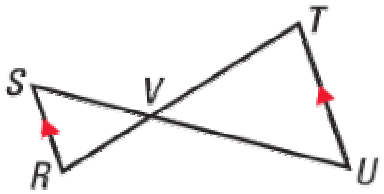


$\angle ABE \cong \angle ACD$

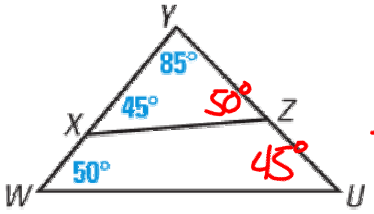
$\angle A \cong \angle A$

$\triangle ABE \sim \triangle ACD$

3.



4.



$\triangle YZX \sim \triangle YWU$

Goal 3. Prove similarity using SSS~.

THEOREM *For Your Notebook*

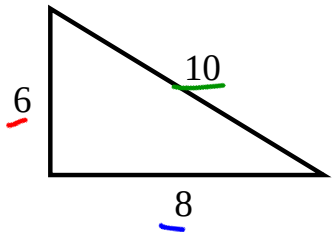
THEOREM 6.2 Side-Side-Side (SSS) Similarity Theorem

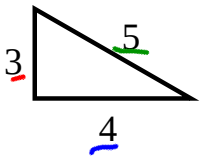
If the corresponding side lengths of two triangles are proportional, then the triangles are similar.

If $\frac{AB}{RS} = \frac{BC}{ST} = \frac{CA}{TR}$, then $\triangle ABC \sim \triangle RST$.

Proof: p. 389

Example:

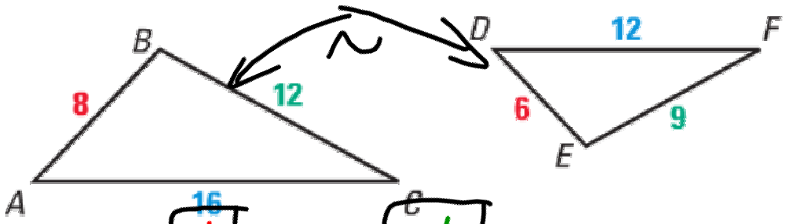




BIG / SMALL

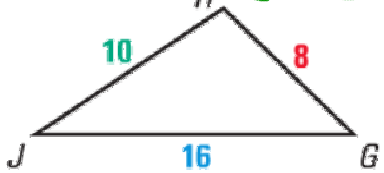
$\frac{6}{3} = \frac{2}{1}$ $\frac{10}{5} = \frac{2}{1}$ $\frac{8}{4} = \frac{2}{1}$

Is either $\triangle DEF$ or $\triangle GHJ$ similar to $\triangle ABC$?



$\frac{8}{6} = \frac{4}{3}$ $\frac{12}{9} = \frac{4}{3}$ $\frac{16}{12} = \frac{4}{3}$

NOT ~ TO $\triangle ABC$



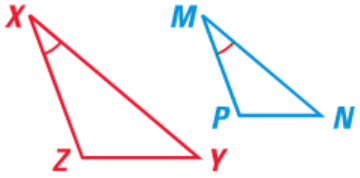
$\frac{8}{8} = \frac{1}{1}$ $\frac{12}{10} = \frac{6}{5}$

Goal 4. Prove similarity using SAS~.

THEOREM *For Your Notebook*

THEOREM 6.3 Side-Angle-Side (SAS) Similarity Theorem

If an angle of one triangle is congruent to an angle of a second triangle and the lengths of the sides including these angles are proportional, then the triangles are similar.

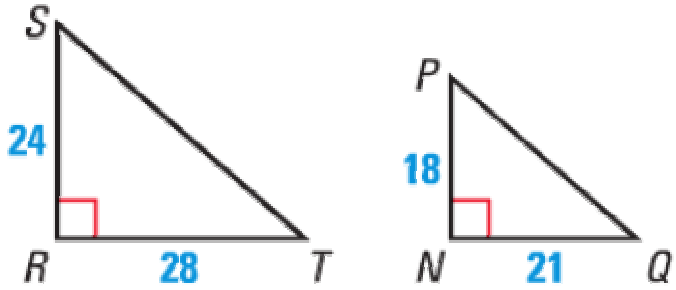


If $\angle X \cong \angle M$ and $\frac{ZX}{PM} = \frac{XY}{MN}$, then $\triangle XYZ \sim \triangle MNP$.

Proof: Ex. 37, p. 395

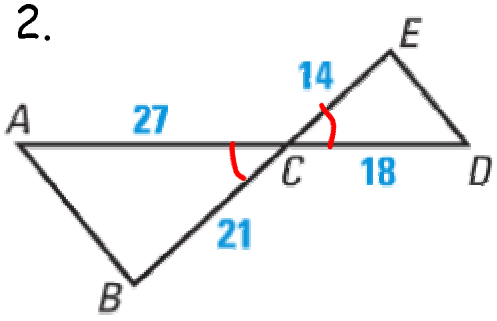
Examples: Determine if the two triangles are similar.

1.



$\frac{24}{18} = \frac{4}{3}$ $\frac{28}{21} = \frac{4}{3}$

2.



$\frac{27}{18} = \frac{3}{2}$ $\frac{21}{14} = \frac{3}{2}$